Service Manual

74 CD43/01B/02B/05B
74 CD53/01B/02B/05B/01G/02G
74 CD63/01B/02B/05B
Compact disc player

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marantz®

model CD-43/CD-53/CD-63

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PCS 71 452

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
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P.O.Box 21025
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20124 Milano
Italy

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MARANTZ JAPAN INC.
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Sagamihara-shi, Kanagawa
Japan

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AL ALAMIAH ELECTRONICS
P.O.Box 8196
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22052 Kuwait

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Box 1324
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SWITZERLAND
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Postfach
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Switzerland

TRADING
MARANTZ TRADING
P.O.Box 20008
Building SFF 2
5600 JB Eindhoven
The Netherlands

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country.
In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

	CD43	CD53	CD63
Audio Characteristics			
Channels	2 channels		
Sampling frequency	44.1 kHz		
Quantization	16-bit linear/channel		
Error correction	Cross-interleave read solomon code (CIRC)		
D/A conversion	1-bit linear/channel		
Wow & flutter	Precision of quartz		
Optical Readout System			
Laser	GaAlAs semiconductor		
Wavelength	780 nm		
Frequency Characteristics			
Frequency range	5 Hz – 20 kHz	5 Hz – 20 kHz	5 Hz – 20 kHz
Dynamic range	> 96 dB	> 96 dB	> 96 dB
S/N ratio	> 102 dB	> 104 dB	> 104 dB
Channel separation (1 kHz)	> 100 dB	> 100 dB	> 102 dB
THD (1 kHz)	0.003 %	0.0025 %	0.0025 %
Analog output jack			
Output level	2V RMS	2V RMS	2V RMS
Output impedance	200 ohms	200 ohms	200 ohms
Digital output			
Pin jack	0.5 Vp-p/75 ohms	0.5 Vp-p/7 5ohms	0.5 Vp-p/75 ohms
Optical output	—	—	–19 dBm
Power Supply			
/01 version	110-120/220-240V AC 50/60 Hz		
/02 version	230V AC 50 Hz		
/05 version	240V AC 50 Hz		
Power consumption	11 W	11 W	13 W
Cabinet, etc.			
Dimensions			
Width	420 mm		
Height	86 mm		
Depth	300 mm		
Net weight	4.1 kg		
Operating temperatures	+5 °C ~ +35 °C		
Operating humidity	5 % ~ 90 % (without dew)		
Accessories			
Remote control unit (RC-63CD)	—	1	1
AA (R6) batteries	—	2	2
Stereo audio cable	1	1	1

Specifications subject to change without prior notice.

2. CAUTION

LASER NOTE:	
DANGER —	Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION —	Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION —	The use of optical instruments with this product will increase eye hazard.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPELY QUALIFIED SERVICE PERSONNEL.

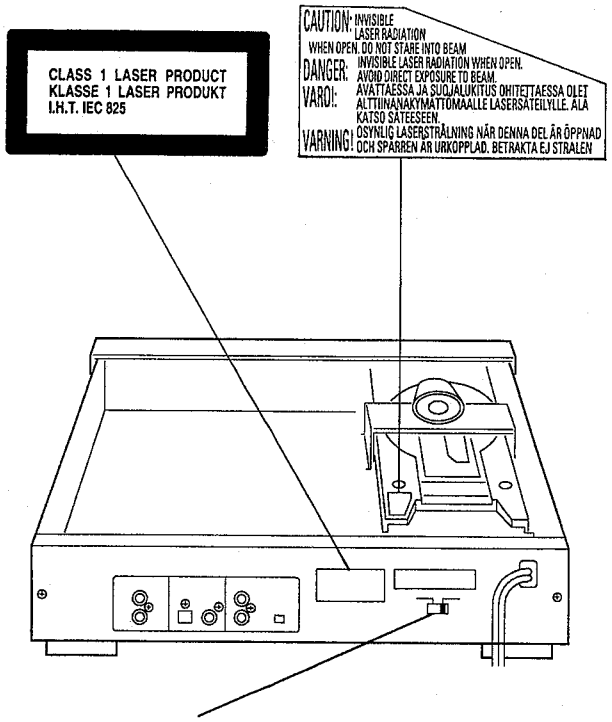
LASER BEAM RADIATION SPOT

Laser Diode Properties
Material: Al GaAs
Wavelength: 780nm ± 20nm
Laser Output: Continuous Wave max. 0.5mW

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

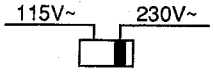
ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.


CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT
I.H.T. IEC 825
CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM
DANGER: INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
VARO!: AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINANAKYMATTOMAALLE LASERSATEILYLLE. ÄLA KATSO SATEESEEN.
VARNING! OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN

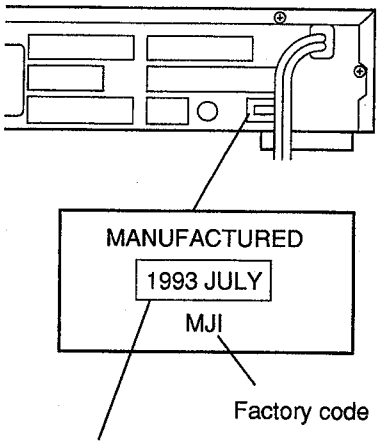
VOLTAGE CONVERSION (/01B version only)
To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

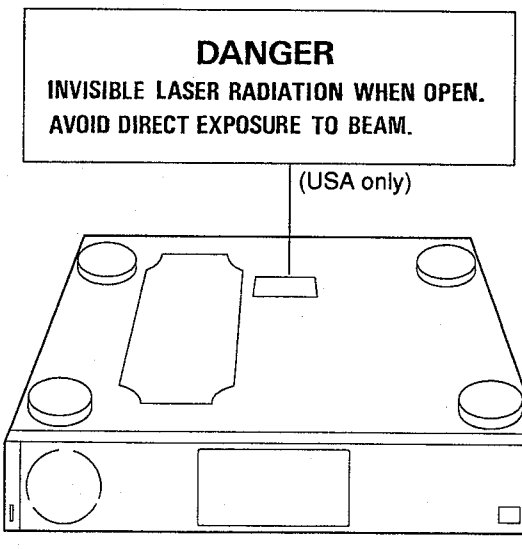
VOLTAGE SELECTOR



CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

(USA only)



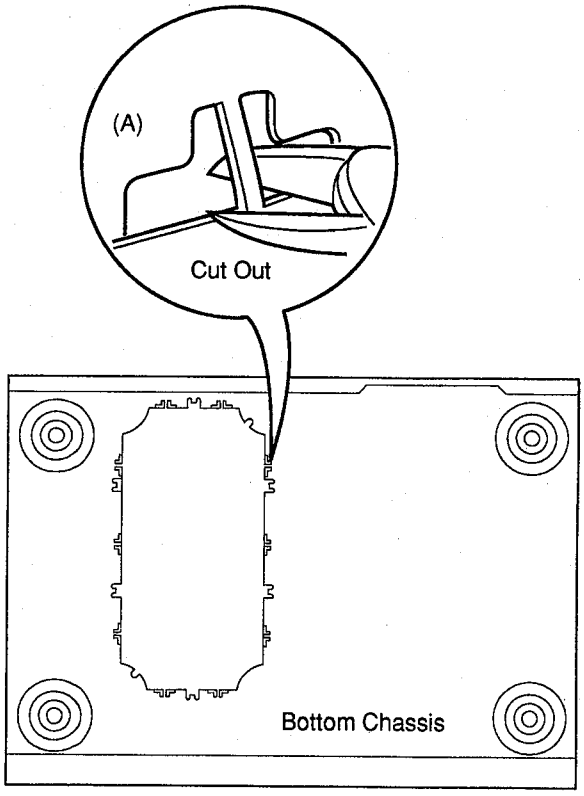


3. USE OF SERVICE HOLE

(1) If the use of the service hole is required, remove the cover by cutting 10 bridges (A) using a tool such as a pair of cutter.

(2) During this work, be careful of the sharp edges at the cut positions.

(3) After using the service hole, rotate the cover and fix it using screws [3 x 6 (M)].



4. SERVICE MODE

1. How to enter into the Service Mode
   - Turn the power on while pressing at least 2 of [STOP], [PLAY], [NEXT], [PREV] keys.

2. Mode 0 (Display P00)
   Condition: [FOCUS OFF] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   - The sled moves outside when pressing [CUE]/ [REVIEW] keys.
   - The function moves to Mode 1 when pressing [NEXT] key.

3. Mode 1 (Display P01)
   Condition: [FOCUS ON] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   - The function moves to Mode 2 when pressing [NEXT] key.
   - The function moves to Mode 0 when pressing [PREV] key.

4. Mode 2 (Display P02)
   Condition: [FOCUS ON] [SPINDLE ON] [RADIAL OFF] [MUTE ON]
   - The function moves to Mode 3 when pressing [NEXT] key.
   - The function moves to Mode 0 when pressing [PREV] key.

5. Mode 3 (Display P03)
   Condition: [FOCUS ON] [SPINDLE ON] [RADIAL ON] [MUTE OFF]
   - The Sled moves outside when pressing [CUE] key.
   - The Sled moves inside when pressing [REVIEW] key.
   - The function moves to Mode 2 when pressing [PREV] key.

   * The following key operation can be available at all of the conditions of the service mode.
   1) All of FL display light by pressing [STOP] key.
   2) Model Number and Version Nbr of the μ-processor are displayed by pressing [PAUSE] key.

Cd - □ - □
- □: Model Name (1=CD1010, 2=CD1020, 3=CD-63/53/43)
- □: μ-Processor Version Nbr.

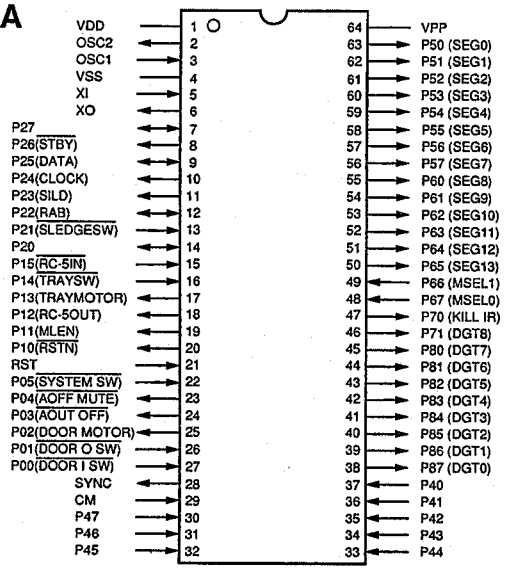
   3) The same as Normal operation (except Service mode) is performed by pressing [PLAY] key.
   However if some default is detected, an error code is displayed. (For example: Err 10)
   The content for each error code is shown below.

Error Code	Error
Err 02	FOCUS Error
Err 07	SUB CODE Error
Err 08	T. O. C Error
Err 09	DECODER Error
Err 10	RADIAL Error
Err 11, 12	SLED Error
Err 13	SPINDLE Error
Err 16 ~ 20	SEARCH Error
Err 30	DOOR Error
Err 31	TRAY Error
Err 32 ~ 47	KEY INPUT Error

6. Cancelling the Service Mode
   - The Service Mode is cancelled by turning the power off.

5. MICROPROCESSOR AND IC DATA

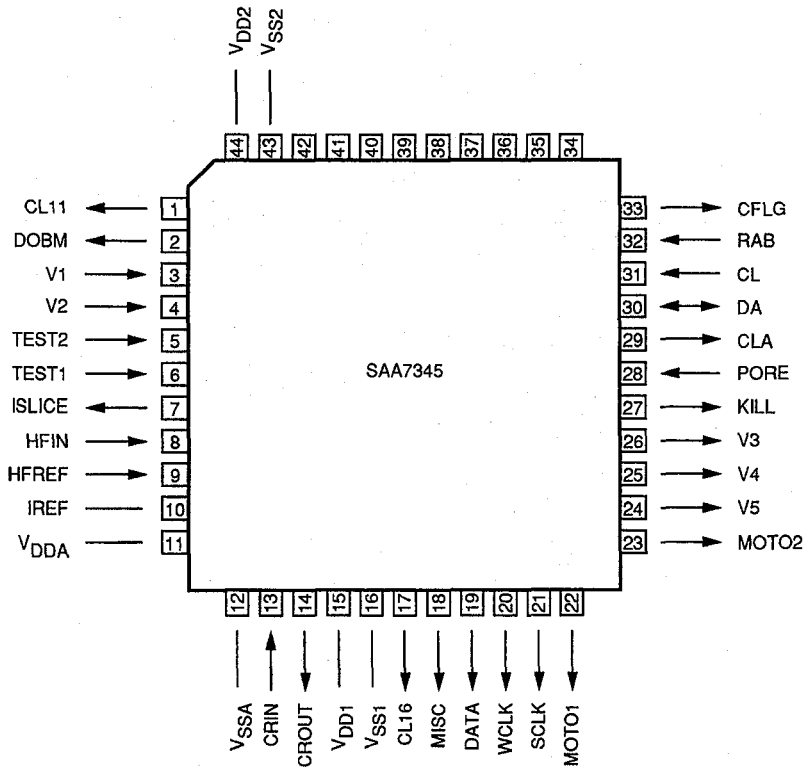
MN187164 (MICROPROCESSOR)



Pin Nbr	Pin Name	I/O	Function
1	Vdd	-	Power Supply +5V
2	OSC2	O	Clock out (8.0MHz)
3	OSC1	I	Clock in (8.0MHz)
4	Vss	-	GND 0V
5	XI	I	0V
6	XO	O	Not Used
7	P27	I/O	Not Used
8	P26 $\overline{\text{STBY}}$	O	TDA1301 RESET, NRST
9	P25 DATA	I/O	Data Bus Data, SIDA
10	P24 CLOCK	O	Data Bus Clock, SICK
11	P23 SILD	O	TDA1301 SILD (latch)
12	P22 RAB	I/O	SAA7345 RAB
13	P21 $\overline{\text{SLEDGESW}}$	I	Sledge SW, SLSW
14	P20 $\overline{\text{MUTE}}$	I/O	Not Used
15	P15 $\overline{\text{RC5IN}}$	I	RC-5 code Input
16	P14 $\overline{\text{TRAYSW}}$	I	Tray In/Out SW, TRSW
17	P13 TRAYMOTOR	O	Tray Motor
18	P12 RC5OUT	O	RC-5 code Output
19	P11 MLEN	O	SM5872 MLEN (latch)
20	P10 $\overline{\text{RSTN}}$	O	SM5872 RSTN (reset)
21	RST	I	RESET
22	P05 $\overline{\text{SYSTEM SW}}$	I	System SW
23	P04 $\overline{\text{AOFF MUTE}}$	O	Audio OFF Mute, N.C.
24	P03 $\overline{\text{AOUT OFF}}$	O	Audio Out OFF
25	P02 DOORMOTOR	O	Door Motor
26	P01 $\overline{\text{DOOR O SW}}$	I	Door Out SW
27	P00 $\overline{\text{DOOR I SW}}$	I	Door In SW
28	SYNC	O	Not Used
29	CM	I	0V
30	P47	I	Key Input, KEY 8
31	P46	I	Key Input, KEY 7
32	P45	I	Key Input, KEY 6

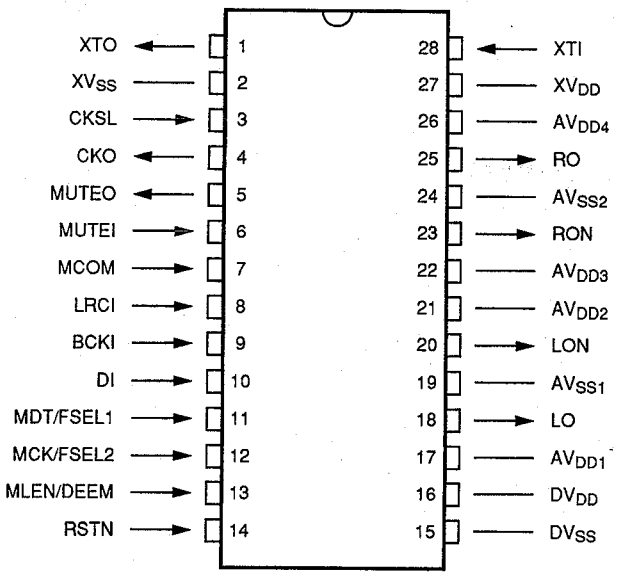
Pin Nbr	Pin Name	I/O	Function
33	P44	I	Key Input, KEY 5
34	P43	I	Key Input, KEY 4
35	P42	I	Key Input, KEY 3
36	P41	I	Key Input, KEY 2
37	P40	I	Key Input, KEY 1
38	P87 (DGT0)	O	FL Digit Data, G9
39	P86 (DGT1)	O	FL Digit Data, G8
40	P85 (DGT2)	O	FL Digit Data, G7
41	P84 (DGT3)	O	FL Digit Data, G6
42	P83 (DGT4)	O	FL Digit Data, G5
43	P82 (DGT5)	O	FL Digit Data, G4
44	P81 (DGT6)	O	FL Digit Data, G3
45	P80 (DGT7)	O	FL Digit Data, G2
46	P71 (DGT8)	O	FL Digit Data, G1
47	P70 KILL IR	O	Kill IR, N.C.
48	P67 MSEL0	I	Model Select SW 0
49	P66 MSEL1	I	Model Select SW 1
50	P65 (SEG13)	O	FL Segment Data, P1
51	P64 (SEG12)	O	FL Segment Data, P2
52	P63 (SEG11)	O	FL Segment Data, P3
53	P62 (SEG10)	O	FL Segment Data, P4
54	P61 (SEG9)	O	FL Segment Data, P5
55	P60 (SEG8)	O	FL Segment Data, P6
56	P57 (SEG7)	O	FL Segment Data, P7
57	P56 (SEG6)	O	FL Segment Data, P8
58	P55 (SEG5)	O	FL Segment Data, P9
59	P54 (SEG4)	O	FL Segment Data, P10
60	P53 (SEG3)	O	FL Segment Data, P11
61	P52 (SEG2)	O	FL Segment Data, P12
62	P51 (SEG1)	O	FL Segment Data, P13
63	P50 (SEG0)	O	FL Segment Data, P14
64	Vpp	-	Power Supply -25V, VFTD

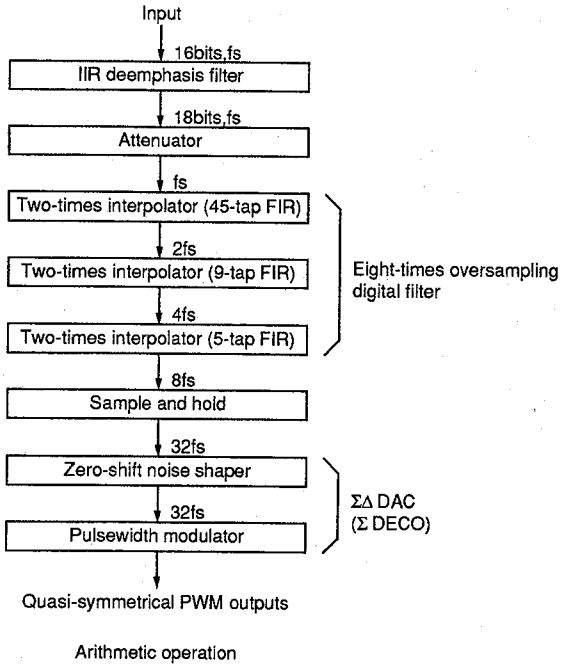
SAA7345GP (DIGITAL DECODING IC WITH RAM)



Pin Nbr	Pin Name	I/O	Function	Pin Nbr	Pin Name	I/O	Function
1	CL11	O	11.2896MHz clock output (3-state)	23	MOTO2	O	Motor output 2; versatile (3-state)
2	DOBM	O	Bi-phase mark output (externally buffered; 3-state)	24	V5	O	Versatile output pin
3	V1	I	Versatile input pin	25	V4	O	Versatile output pin
4	V2	I	Versatile input pin	26	V3	O	Versatile output pin (open-drain)
5	TEST2	I	Test input: this pin should be tied LOW	27	KILL	O	Kill output; programmable (open-drain)
6	TEST1	I	Test input; this pin should be tied LOW	28	PORE	I	Power-on reset enable input (active LOW)
7	ISLICE	O	Current feedback from data slicer	29	CLA	O	4.2336MHz microprocessor clock output
8	HFIN	I	Comparator signal input	30	DA	I/O	Interface data I/O line
9	HFREF	I	Comparator common-mode input	31	CL	I	Interface clock input line
10	IREF	-	Reference current pin (nominally $V_{DD}/2$)	32	RAB	I	Interface R/$\overline{W}$ and acknowledge input
11	V_{DDA}	-	Power supply (Analogue)	33	CFLG	O	Correction flag output (open-drain)
12	V_{SSA}	-	GND (Analogue)	34	—	-	No internal connection
13	CRIN	I	Crystal/resonator input, 16.9344 MHz	35	—	-	
14	CROUT	O	Crystal/resonator output	36	—	-	
15	V_{DD1}	-	Power supply 1 (Digital)	37	—	-	
16	V_{SS1}	-	GND 1 (Digital)	38	—	-	
17	CL16	O	16.9344MHz system clock output	39	—	-	
18	MISC	O	General purpose DAC output (3-state)	40	—	-	
19	DATA	O	Serial data output (3-state)	41	—	-	
20	WCLK	O	Word clock output (3-state)	42	—	-	
21	SCLK	O	Serial bit clock output (3-state)	43	V_{SS2}	-	GND 2 (Digital)
22	MOTO1	O	Motor output 1; versatile (3-state)	44	V_{DD2}	-	Power supply 2 (Digital)

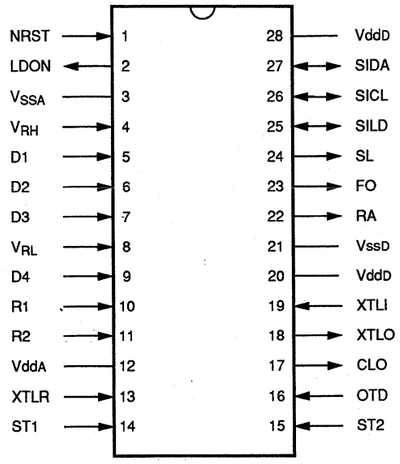
SM5872BS (DIGITAL FILTER AND D/A CONVERTER)





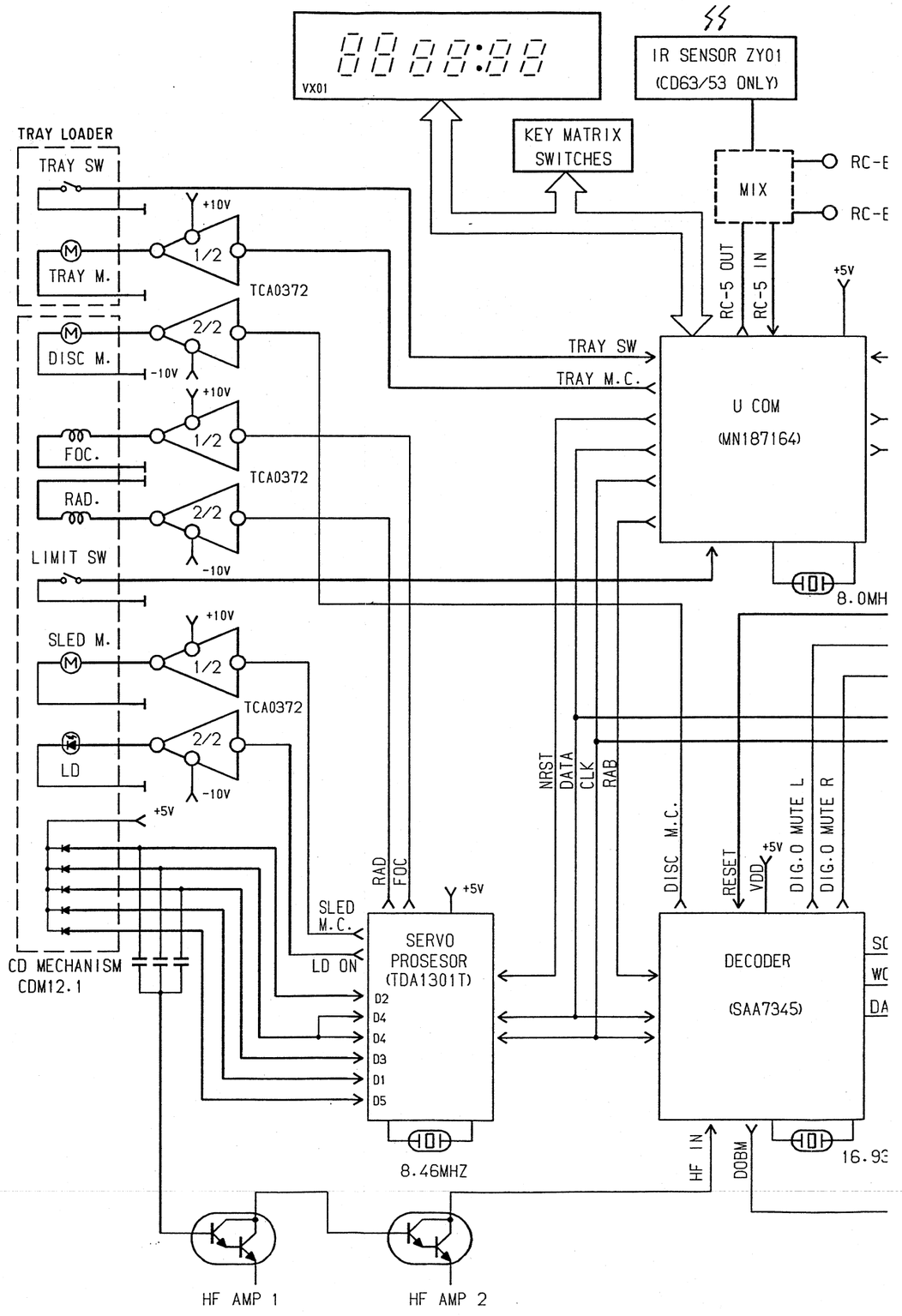
Pin Nbr	Pin Name	I/O	Function
1	XTO	O	Crystal oscillator output
2	XV_{SS}	-	GND (X'TAL)
3	CKSL	I	This pin should be tied HIGH for normal operation. Internal pull-up resistor
4	CKO	O	Clock output (384fs)
5	MUTEO	O	Mute detect output
6	MUTEI	I	Mute input. Internal pull-resistor
7	MCOM	I	Interface mode select input. Internal pull-up resistor : H = Interface mode L = Local
8	LRCI	I	Data sample rate clock input. Internal pull-up resistor : H = L ch L = R ch
9	BCKI	I	Bit clock input. Internal pull-up resistor
10	DI	I	Serial data input. Internal pull-up resistor
11	MDT/FSEL1	I	Microprocessor interface data input (and local mode frequency select input). Internal pull-up resistor
12	MCK/FSEL2	I	Microprocessor interface clock input (and local mode frequency select input). Internal pull-up resistor
13	MLEN/DEEM	I	Microprocessor interface latch enable input (and local mode deemphasis control input). Internal pull-up resistor
14	RSTN	I	Reset input. Internal pull-up resistor
15	DV_{SS}	-	GND (Digital)
16	DV_{DD}	-	Power supply (Digital)
17	AV_{DD1}	-	Power supply 1 (Analogue)
18	LO	O	Left-channel positive PWM output
19	AV_{SS1}	-	GND 1 (Analogue)
20	LON	O	Left-channel negative PWM output
21	AV_{DD2}	-	Power supply 2 (Analogue)
22	AV_{DD3}	-	Power supply 3 (Analogue)
23	RON	O	Right-channel negative PWM output
24	AV_{SS2}	-	GND 2 (Analogue)
25	RO	O	Right-channel positive PWM output
26	AV_{DD4}	-	Power supply 4 (Analogue)
27	XV_{DD}	-	Power supply (X'TAL)
28	XTI	I	Crystal oscillator or external clock input, 384fs (16.9344 MHz)

TDA1301T (DIGITAL SERVO CONTROL)

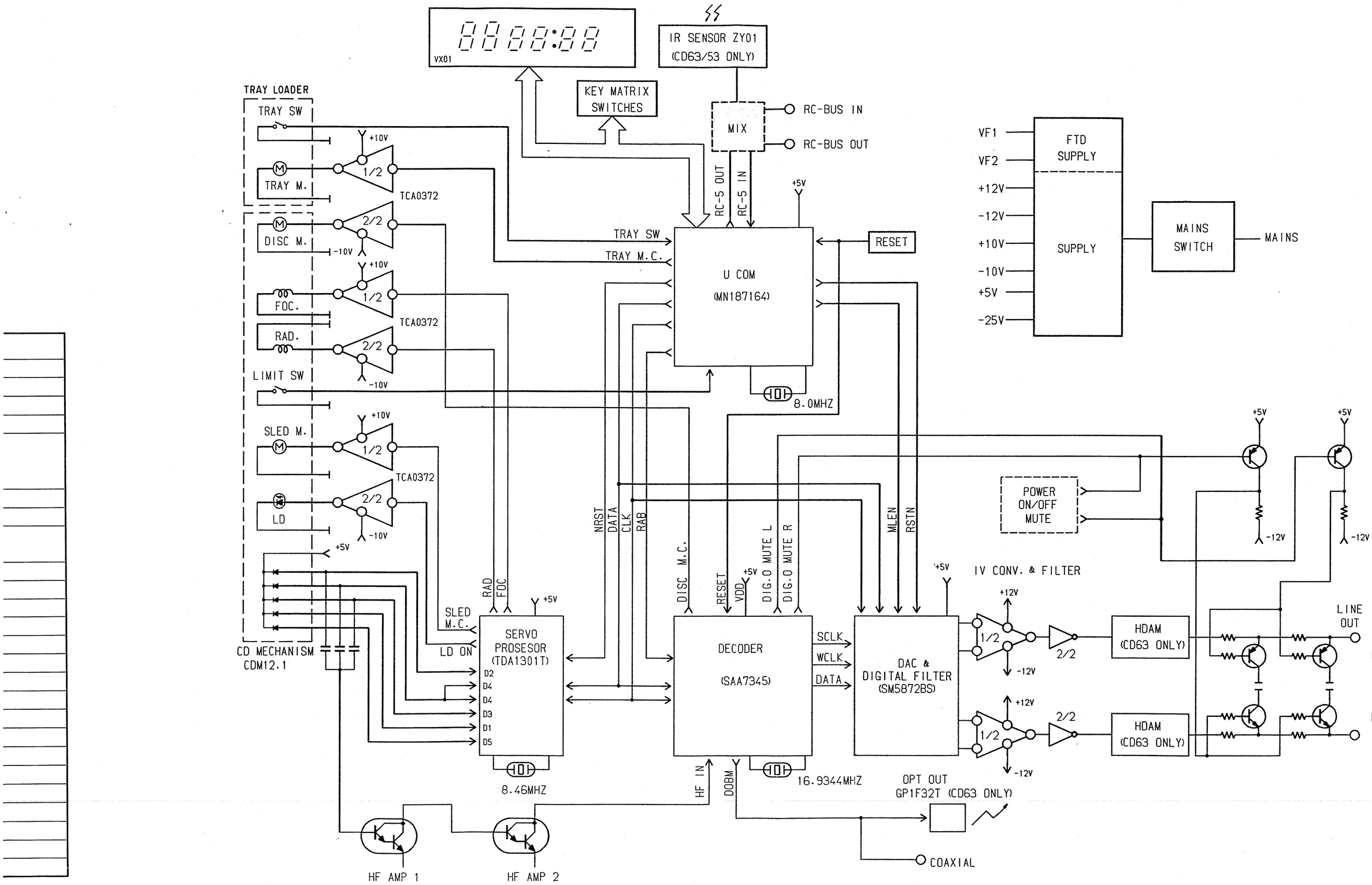


Pin Nbr	Pin Name	I/O	Function
1	NRST	I	Reset input
2	LDON	O	Laser drive on
3	V_{SSA}	-	GND (Analog)
4	V_{RH}	I	A/D converter reference input
5	D1	I	Unipolar current input (Center diode signal input)
6	D2	I	
7	D3	I	
8	V_{RL}	I	A/D converter reference input
9	D4	I	Unipolar current input (Center diode signal input)
10	R1	I	Unipolar current input (Tracking diode signal input)
11	R2	I	
12	V_{ddA}	-	Power supply (Analog)
13	XTLR	I	Oscillator reference
14	ST1	I	Test input 1
15	ST2	I	Test input 2
16	OTD	I	Off-track detection
17	CLO	O	Clock output
18	XTLO	O	Oscillator output
19	XTLI	I	Oscillator input
20	V_{ddD}	-	Power supply (Digital)
21	V_{SSD}	-	GND (Digital)
22	RA	O	Radial actuater output
23	FO	O	Focus actuater output
24	SL	O	Sledge output
25	SILD	I/O	Serial interface load
26	SICL	I/O	Serial interface clock
27	SIDA	I/O	Serial interface data
28	V_{ddD}	-	Power supply (Digital)

6. BLOCK DIAGRAM



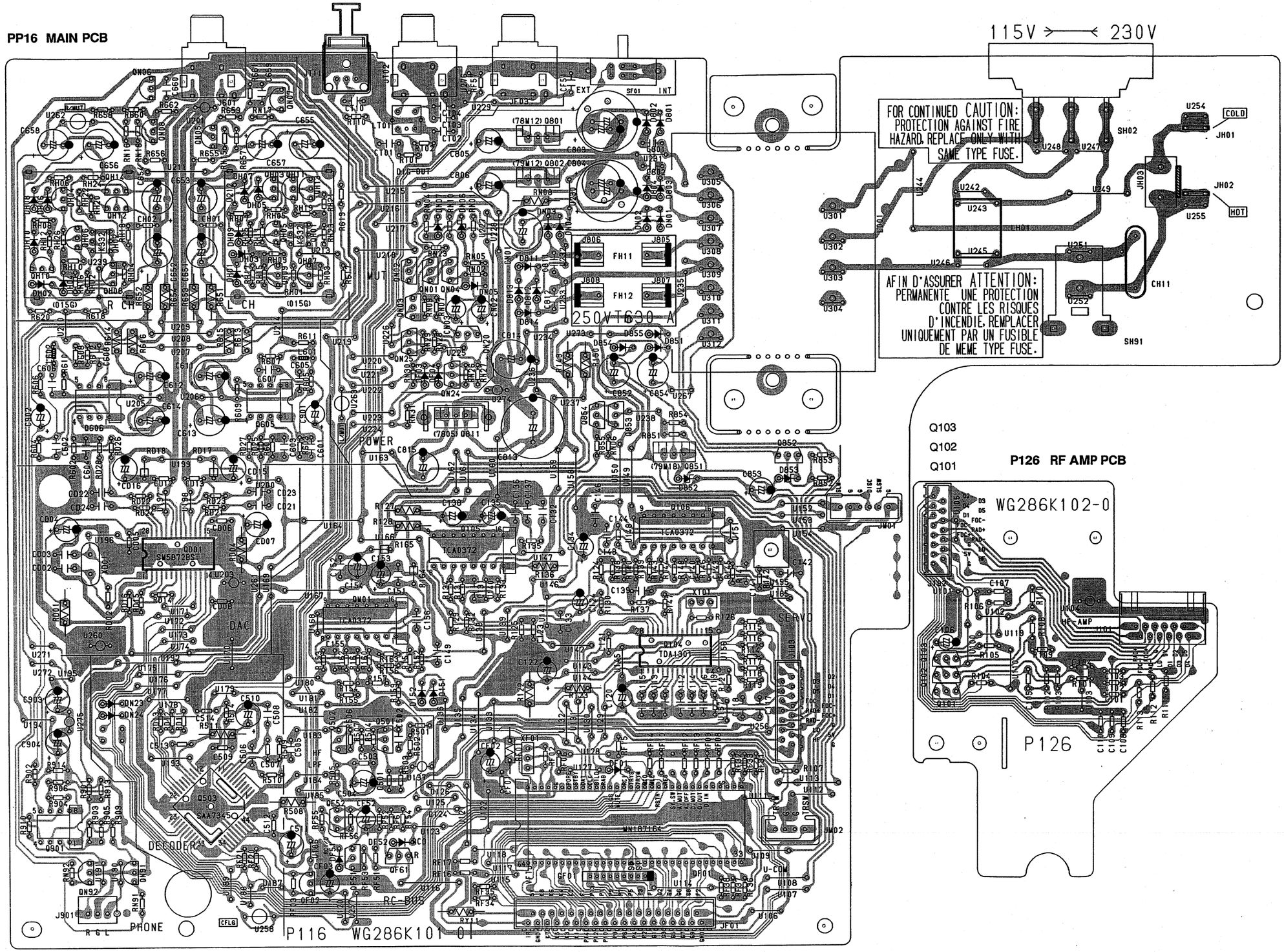
6. BLOCK DIAGRAM



7. SCHEMATIC DIAGRAMS AND PARTS LOCATIONS (PATTERN SIDE)

QH04 QH12 QH14 QH06 QH08 QH05 QH03 QN07 QH11 QH13 QM01 QN01~QN04 Q801 Q802
QH10 QH06 QH02 QH08 QH05 QH09 QH01 QH07 Q501 Q502 QN25 QN24 QN20 Q584 Q583 Q851 Q106 Q852
Q901 Q606 QN92 QN91 QD01 Q503 Q605 QF02 QF51 QF52 QF61 Q811 Q105 QF01 Q104

PP16 MAIN PCB

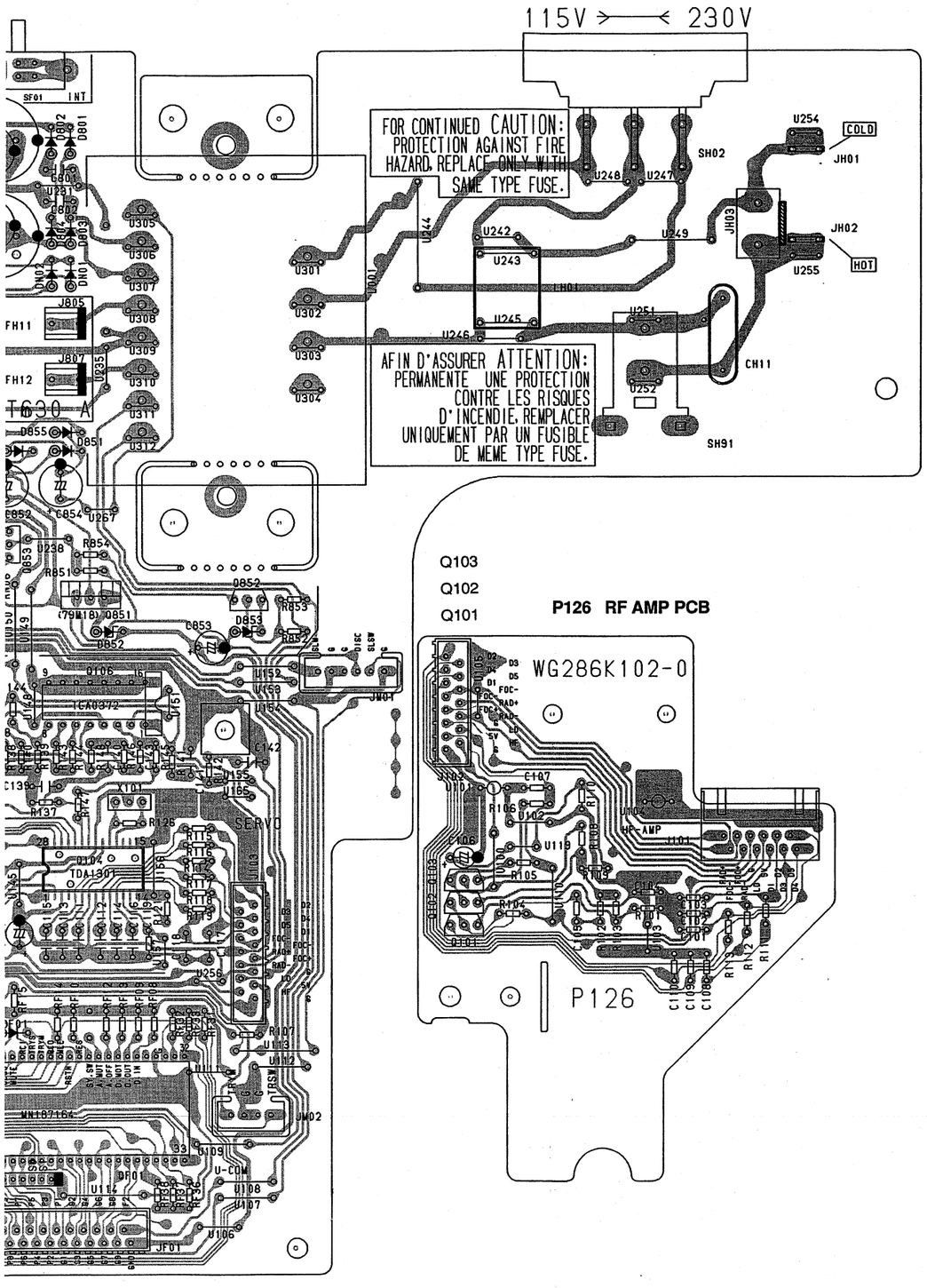


Q103
Q102
Q101

P126 RF AMP PCB

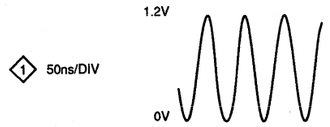
83 Q851 Q106 Q852

QF01 Q104

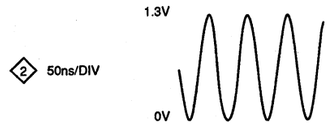


WAVE FORM

All of the wave forms are monitored with PLAY mode.

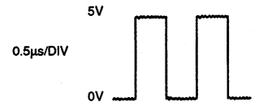


1 50ns/DIV

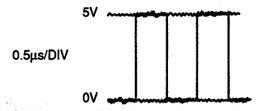


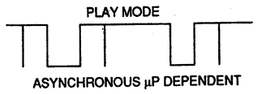
2 50ns/DIV

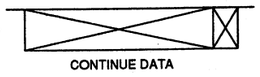
3 SERVICE POSITION 0~2
4 SERVICE POSITION 0~2
5 SERVICE POSITION 0

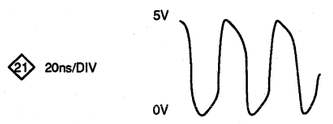


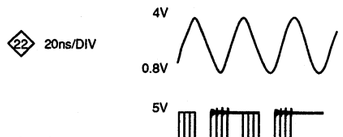
3 SERVICE POSITION 3
4 SERVICE POSITION 3
5 SERVICE POSITION 1~3

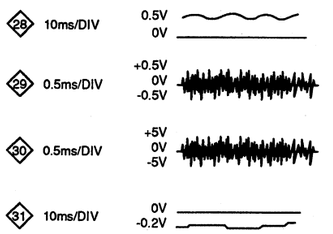




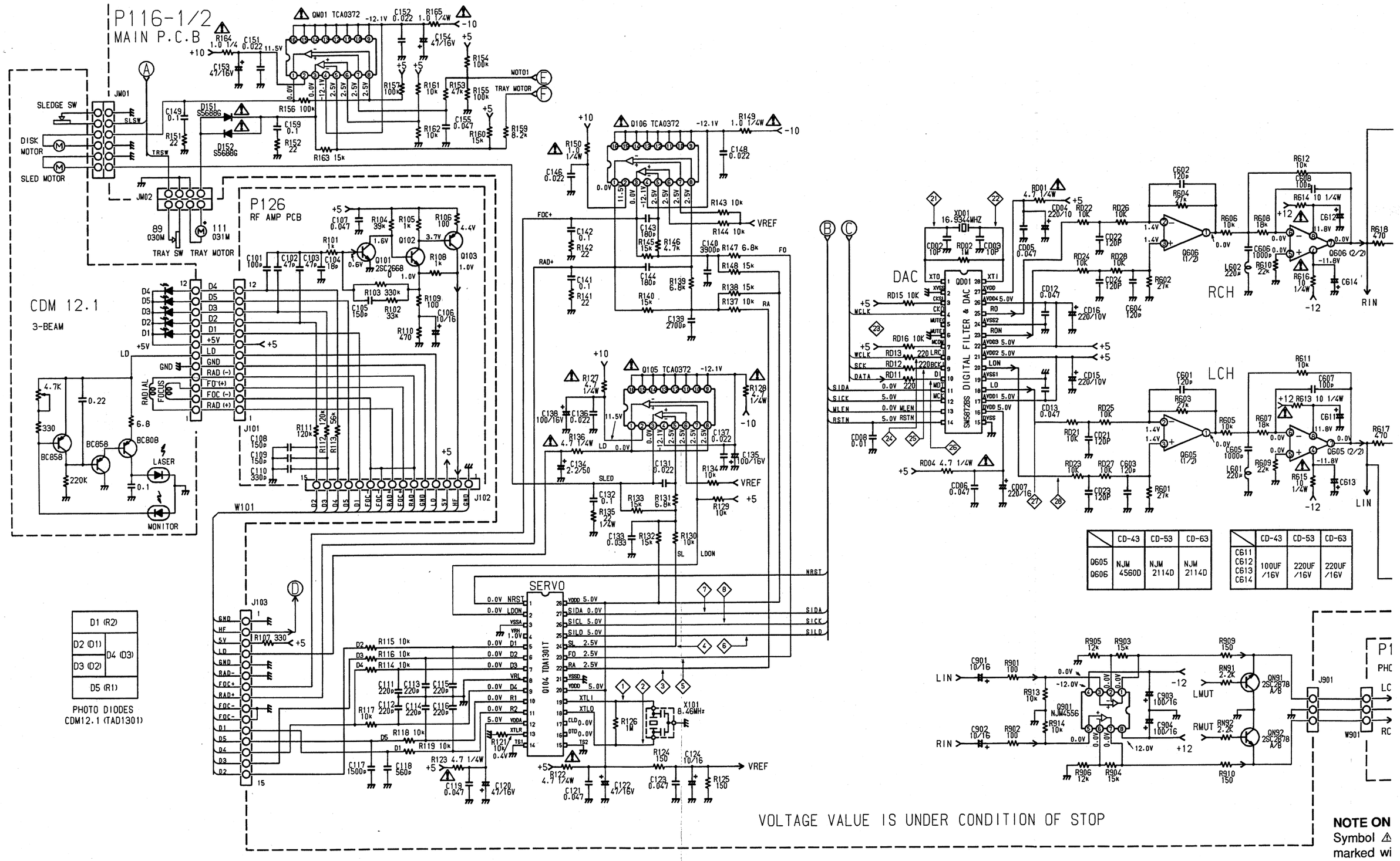








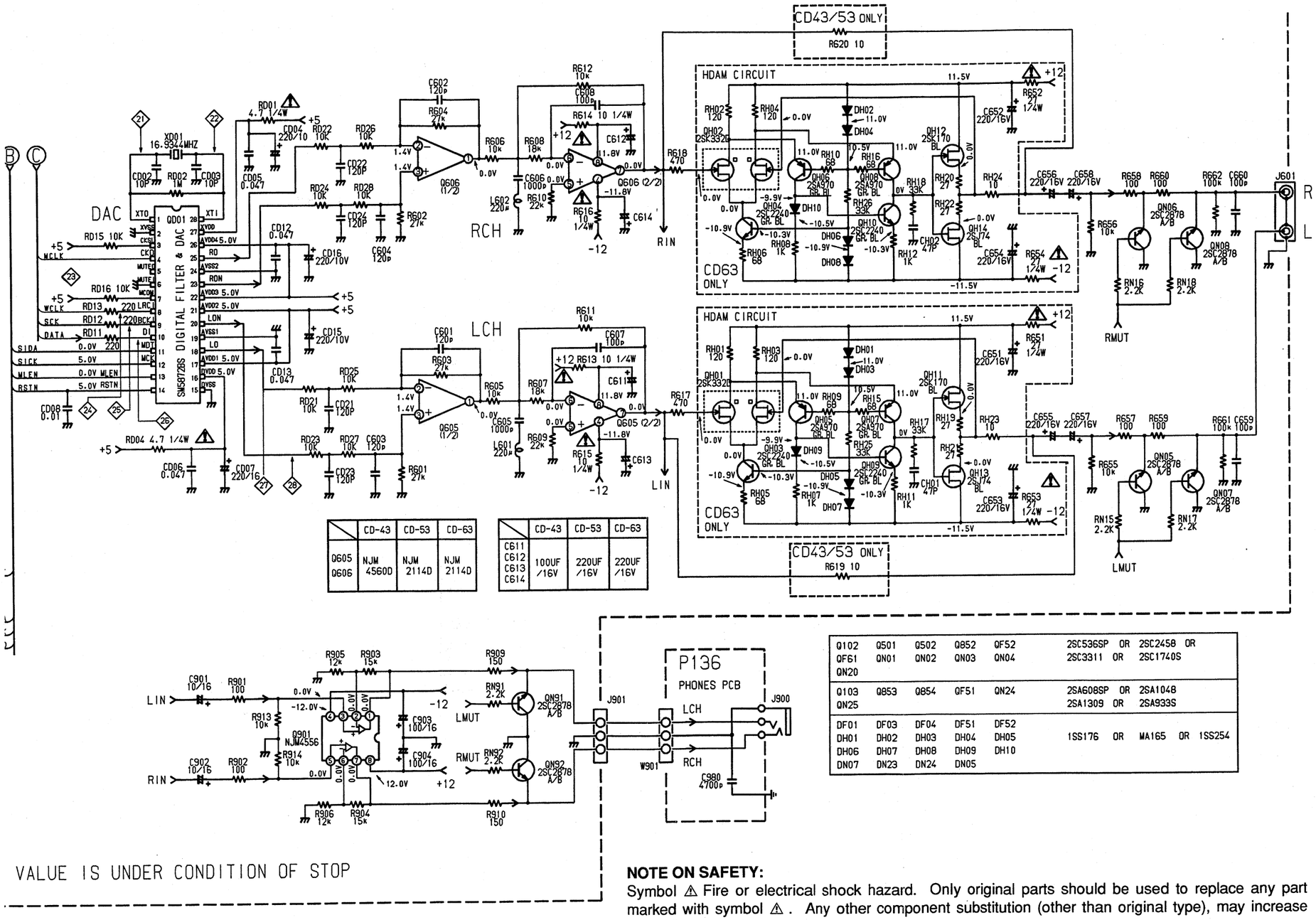
PP16 (1/2) - POWER/AUDIO/DIGITAL PCB



	CD-43	CD-53	CD-63
Q605 Q606	NJM 4560D	NJM 2114D	NJM 2114D

	CD-43	CD-53	CD-63
C611 C612 C613 C614	100UF /16V	220UF /16V	220UF /16V

NOTE ON
Symbol ⚠
marked wi
risk of fire



	CD-43	CD-53	CD-63
Q605 Q606	NJM 4560D	NJM 2114D	NJM 2114D

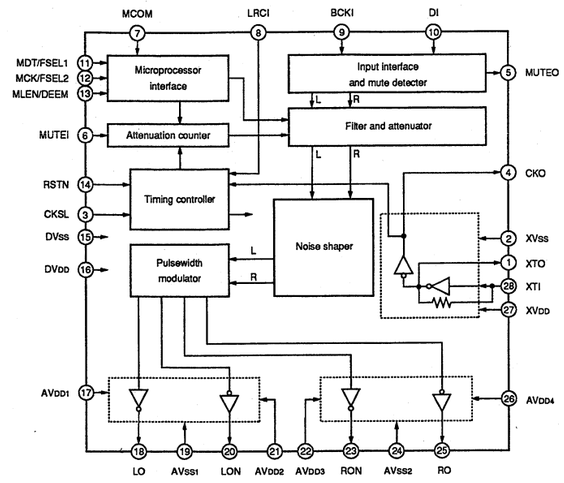
	CD-43	CD-53	CD-63
C611 C612 C613 C614	100UF /16V	220UF /16V	220UF /16V

Q102	Q501	Q502	Q852	QF52	2SC536SP OR 2SC2458 OR
QF61	QN01	QN02	QN03	QN04	2SC3311 OR 2SC1740S
QN20					
Q103	Q853	Q854	QF51	QN24	2SA608SP OR 2SA1048
QN25					2SA1309 OR 2SA933S
DF01	DF03	DF04	DF51	DF52	
DH01	DH02	DH03	DH04	DH05	1SS176 OR MA165 OR 1SS254
DH06	DH07	DH08	DH09	DH10	
DN07	DN23	DN24	DN05		

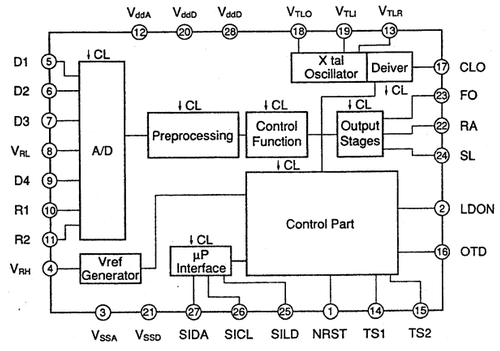
VALUE IS UNDER CONDITION OF STOP

NOTE ON SAFETY:
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

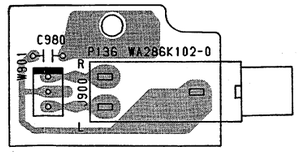
QD01 SM5872BS



Q104 TDA1301T



P136 PHONES PCB



P116-2/2 MAIN P.C.B

	FH11, FH12
/01/02/05, K	T630MA
U, F	1.6A

	CD-43	CD-53	CD-63
C803 C804	220UF /35V	220UF /35V	470UF /35V
C805 C806	47UF /16V	100UF /16V	470UF /16V

QF01 MN18716 PIN DC VOLTAGE

PIN	VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT
1	5.0V	16	5.0V	31	0.0V	46	-21.4V	61	-24.2V
2	—	17	5.0V	32	0.0V	47	—	62	-24.2V
3	—	18	5.0V	33	0.0V	48	5.0V	63	-24.2V
4	0.0V	19	5.0V	34	0.0V	49	5.0V	64	-24.4V
5	0.0V	20	5.0V	35	0.0V	50	-18.2V		
6	5.0V	21	5.0V	36	0.0V	51	-18.2V		
7	5.0V	22	5.0V	37	0.0V	52	-15.2V		
8	0.0V	23	—	38	-21.4V	53	-15.2V		
9	0.0V	24	5.0V	39	-21.4V	54	-18.1V		
10	5.0V	25	5.0V	40	-21.4V	55	-18.3V		
11	5.0V	26	5.0V	41	-21.4V	56	-18.0V		
12	0.0V	27	5.0V	42	-21.4V	57	-24.2V		
13	5.0V	28	—	43	-21.4V	58	-24.2V		
14	—	29	0.0V	44	-21.4V	59	-24.2V		
15	5.0V	30	0.0V	45	-21.4V	60	-24.2V		

	/01	/02	/05	U	F	K
U244	X	-	X	X	X	X
U247	-	-	X	X	X	-
U248	-	X	-	-	-	-

VOLTAGE VALUE IS
UNDER CONDITION OF STOP

⑨ 0.5µs/DIV — EYEPATTERN 1.7V / 1.3V

⑩ 0.1µs/DIV — 5V / 0V

⑪ 0.5µs/DIV — EYEPATTERN 2.5V / 1.7V

⑫ 20ns/DIV — 5V / 0V

⑬ 0.2µs/DIV — 5V / 0V

⑭ 5µs/DIV — 5V / 0V

⑮ 5µs/DIV — 5V / 0V

⑯ 1µs/DIV — 5V / 0V MOVING

⑰ 50ns/DIV — 5V / 0V

⑱ 50ns/DIV — 4.6V / 0V

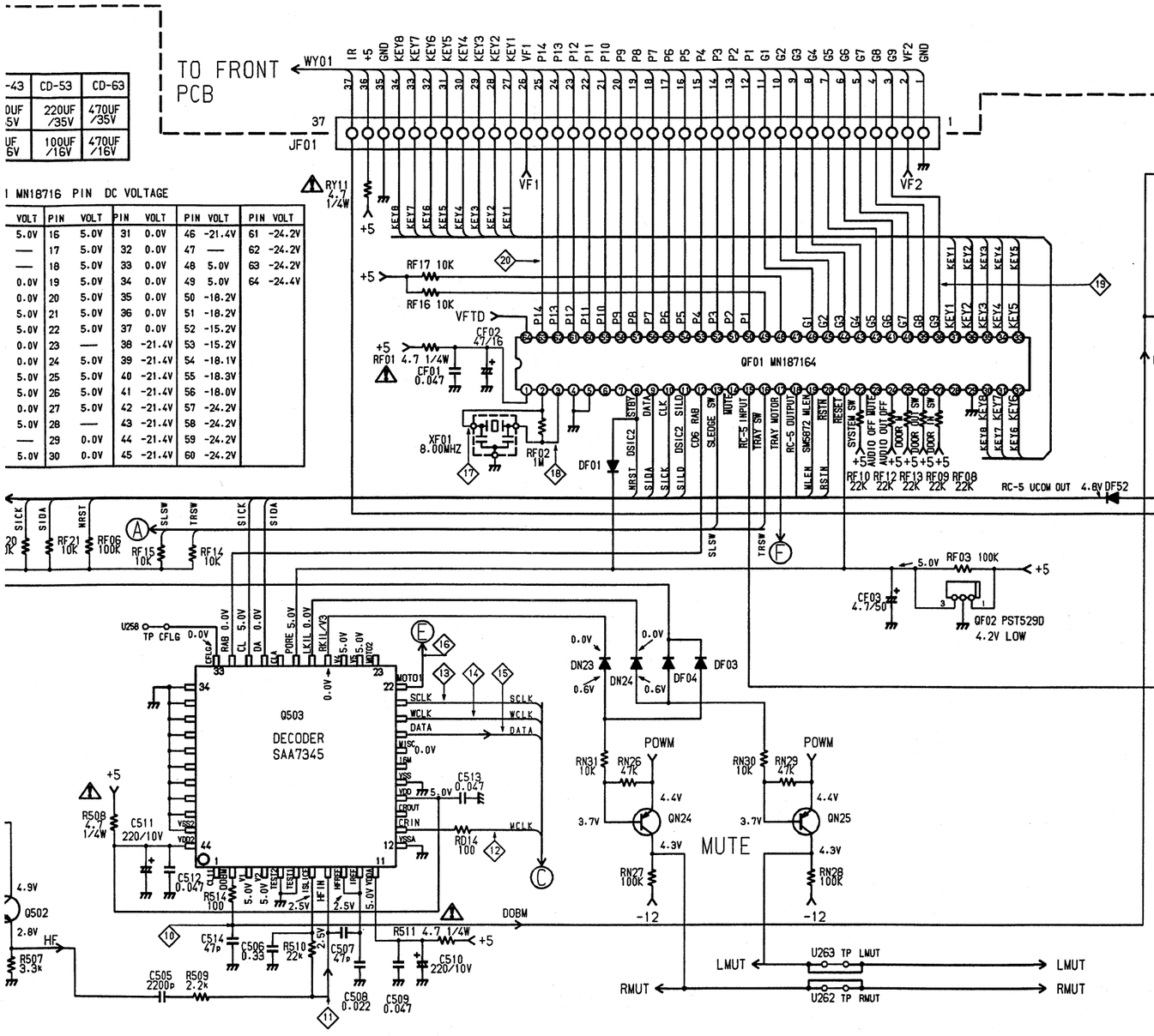
⑲⑳ 1ms/DIV — 5V / -25V

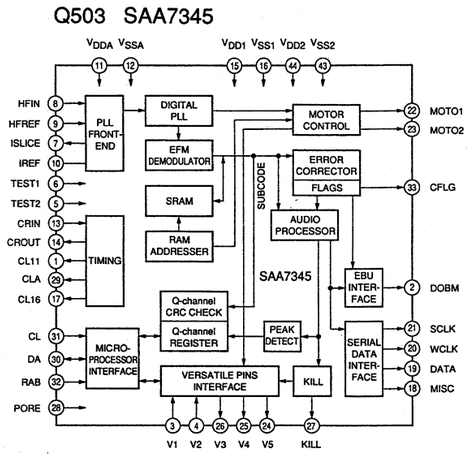
NOTE ON SAFETY:
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be use
marked with symbol ⚠. Any other component substitution (other than origina
risk of fire or electrical shock hazard.

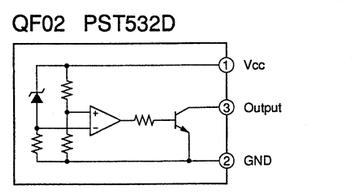
-43	CD-53	CD-63
0UF 5V	220UF /35V	470UF /35V
UF 6V	100UF /16V	470UF /16V

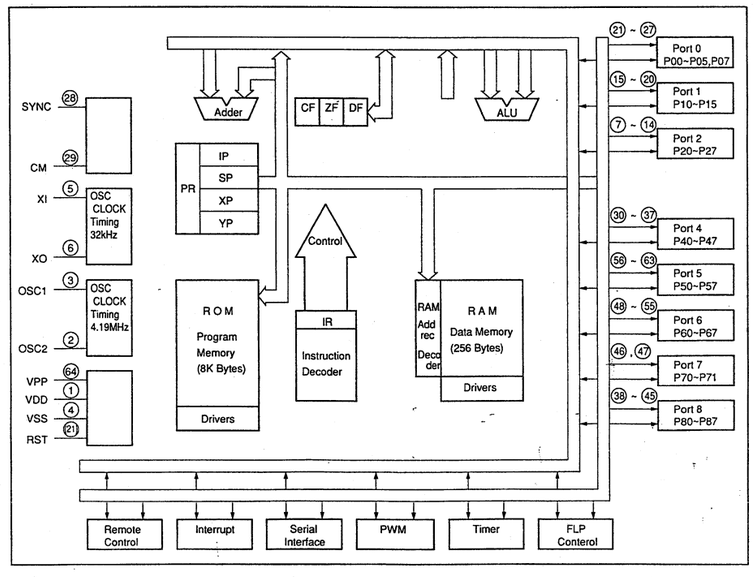
I MN18716 PIN DC VOLTAGE

VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT	PIN	VOLT
5.0V	16	5.0V	31	0.0V	46	-21.4V	61	-24.2V
—	17	5.0V	32	0.0V	47	—	62	-24.2V
—	18	5.0V	33	0.0V	48	5.0V	63	-24.2V
0.0V	19	5.0V	34	0.0V	49	5.0V	64	-24.4V
0.0V	20	5.0V	35	0.0V	50	-18.2V		
5.0V	21	5.0V	36	0.0V	51	-18.2V		
5.0V	22	5.0V	37	0.0V	52	-15.2V		
0.0V	23	—	38	-21.4V	53	-15.2V		
0.0V	24	5.0V	39	-21.4V	54	-18.1V		
5.0V	25	5.0V	40	-21.4V	55	-18.3V		
5.0V	26	5.0V	41	-21.4V	56	-18.0V		
0.0V	27	5.0V	42	-21.4V	57	-24.2V		
5.0V	28	—	43	-21.4V	58	-24.2V		
—	29	0.0V	44	-21.4V	59	-24.2V		
5.0V	30	0.0V	45	-21.4V	60	-24.2V		

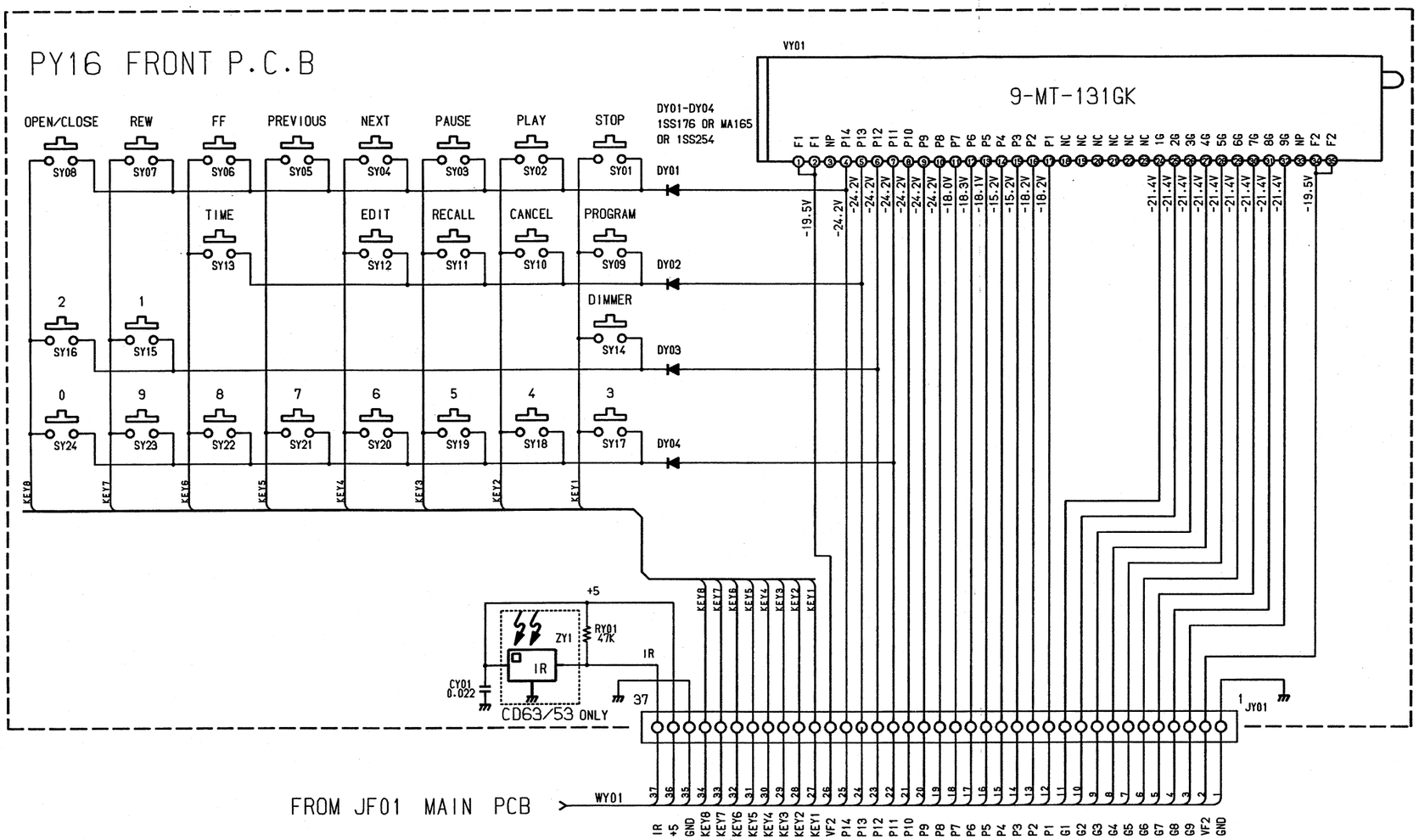


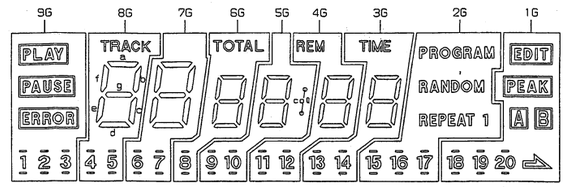






NOTE ON SAFETY:
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.



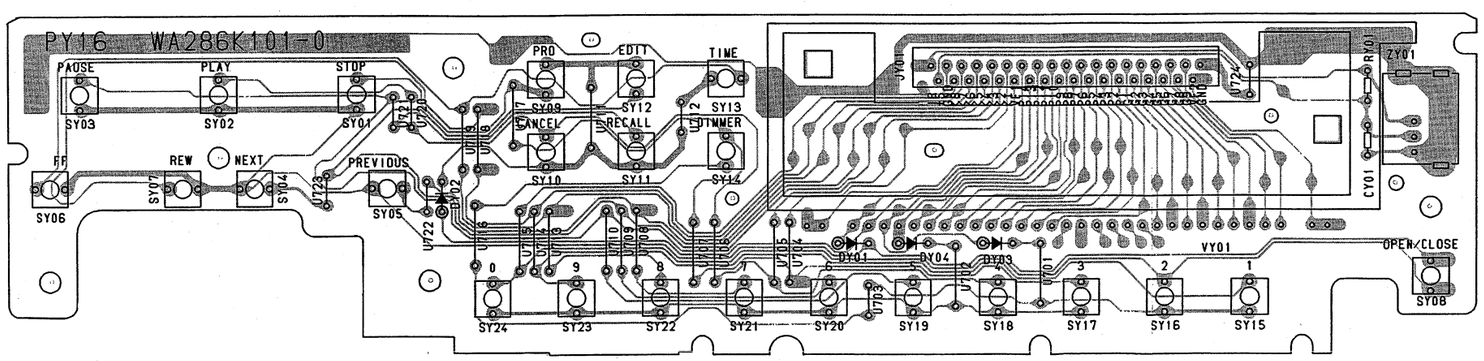


ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	–	a	a	a	a	a	a	PROGRAM	PEAK
P2	(1)	b	b	b	b	b	b	15	18
P3	1	c	c	c	c	c	c	(15)	(18)
P4	(1)	d	d	d	d	d	d	1	
P5	–	e	e	e	e	e	e	REPEAT	B
P6	ERROR	f	f	f	f	f	f	–	A
P7	(2)	g	g	g	g	g	g	(15)	(18)
P8	2	(4)	–	TOTAL	colt	REM	(13)	(16)	(19)
P9	(2)	4	(6)	–	(9)	(11)	13	16	19
P10	(3)	(4)	6	(8)	9	11	(13)	(16)	(19)
P11	3	(5)	(6)	B	(9)	(11)	(14)	(17)	(20)
P12	(3)	5	(7)	(8)	(10)	(12)	14	17	20
P13	PLAY	(5)	7	–	10	12	(14)	(17)	(20)
P14	PAUSE	TRACK	(7)	–	(10)	(12)	TIME	RANDOM	EDIT

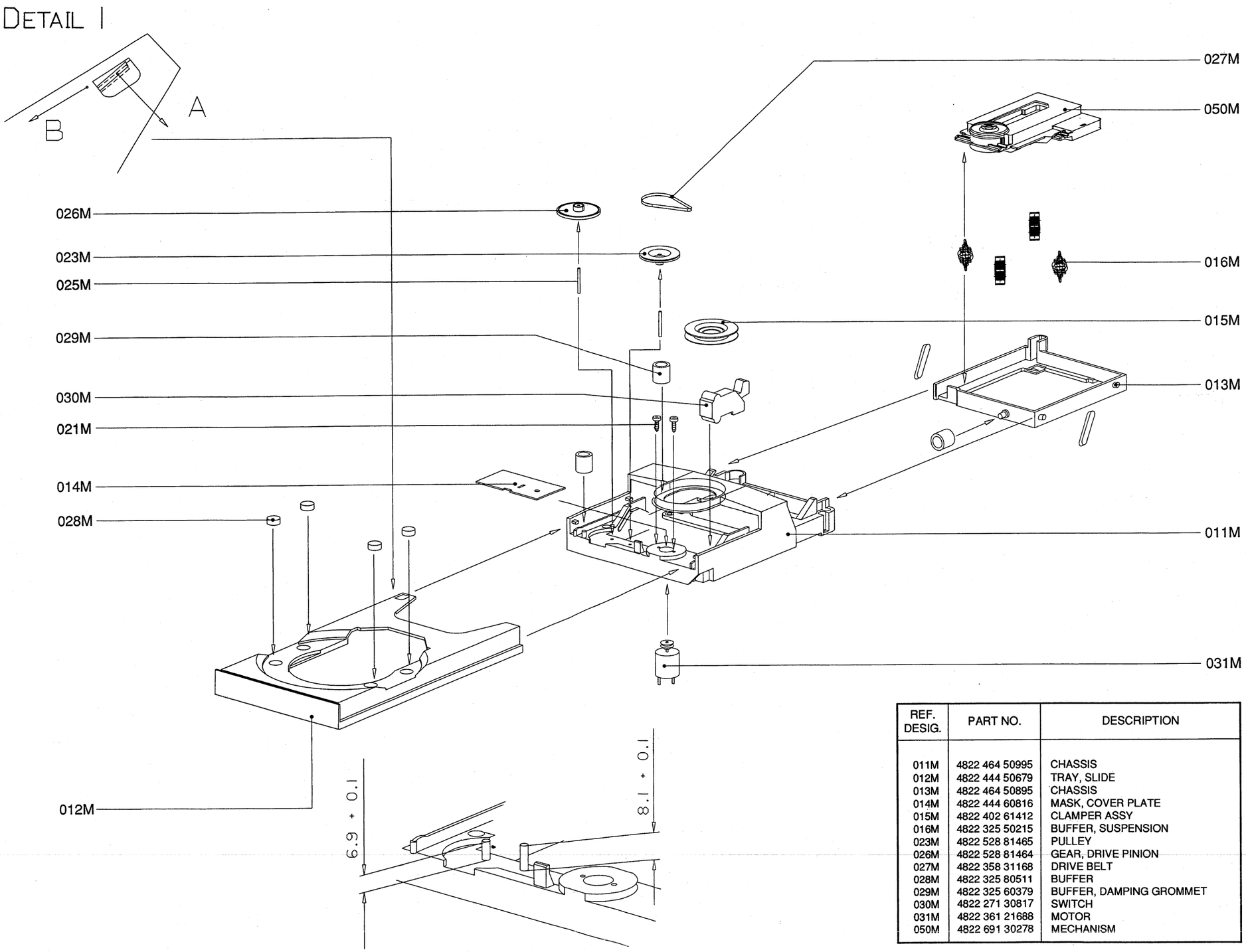
9-MT-131GK
ANODE CONNECTION

PY16 FRONT PCB

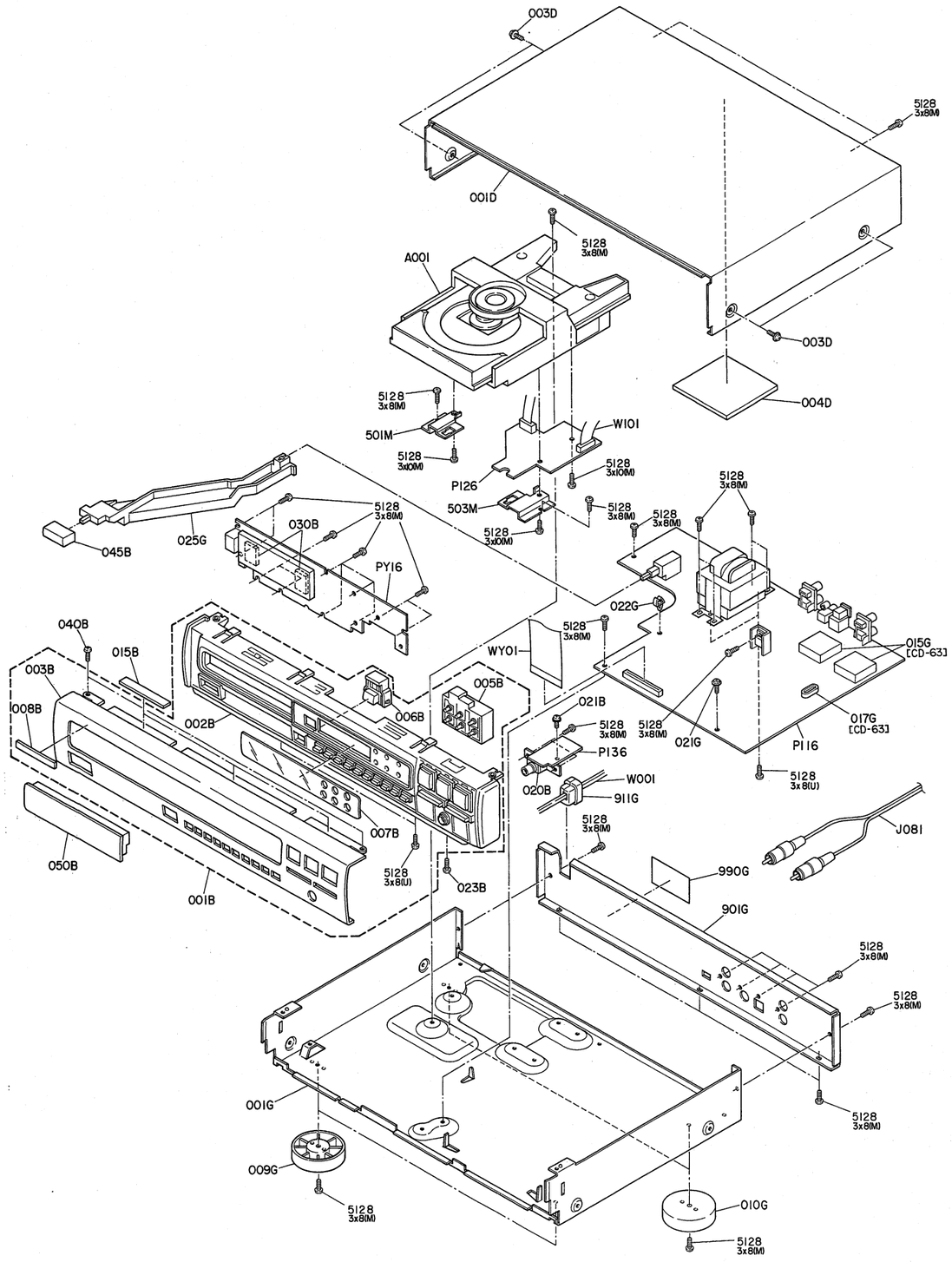


8. EXPLODED VIEW AND PARTS LIST

LOADER



REF. DESIG.	PART NO.	DESCRIPTION
011M	4822 464 50995	CHASSIS
012M	4822 444 50679	TRAY, SLIDE
013M	4822 464 50895	CHASSIS
014M	4822 444 60816	MASK, COVER PLATE
015M	4822 402 61412	CLAMPER ASSY
016M	4822 325 50215	BUFFER, SUSPENSION
023M	4822 528 81465	PULLEY
026M	4822 528 81464	GEAR, DRIVE PINION
027M	4822 358 31168	DRIVE BELT
028M	4822 325 80511	BUFFER
029M	4822 325 60379	BUFFER, DAMPING GROMMET
030M	4822 271 30817	SWITCH
031M	4822 361 21688	MOTOR
050M	4822 691 30278	MECHANISM



REF. DESIG.	PART NO.	DESCRIPTION
	CD43	
002B	4822 464 50994	CHASSIS, FRONT
003B	4822 444 40702	FRONT PANEL, AL CD-43 (BLK)
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK)
007B	4822 450 62155	WINDOW
008B	4822 459 11167	BADGE
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK)
050B	4822 454 30491	ESCUTCHEON
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/05B]
⚠W001	4822 321 10945	A.C.POWER CORD [/01B]
⚠W001	4822 321 10428	A.C.POWER CORD [/02B]
⚠W001	4822 321 11019	A.C.POWER CORD [/05B]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
		PACKING
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 21438	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01B]
	CD53	
002B	4822 464 50994	CHASSIS, FRONT
003B	4822 444 40695	FRONT PANEL, AL CD-63 (BLK)
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK)
007B	4822 450 62145	WINDOW, CD-53/63 WITH REMOTE
008B	4822 459 11167	BADGE
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK)
050B	4822 454 30491	ESCUTCHEON [/01B/02B]
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/05B]
⚠W001	4822 321 10945	A.C.POWER CORD [/01B]
⚠W001	4822 321 10428	A.C.POWER CORD [/02B]
⚠W001	4822 321 11019	A.C.POWER CORD [/05B]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
		PACKING
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 62205	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01]
T100	4822 218 10527	IR COMANDER (RC-63CD)

REF. DESIG.	PART NO.	DESCRIPTION
	CD53	
002B	4822 464 50994	CHASSIS, FRONT [/01B/02B/05B]
002B	4822 464 51005	CHASSIS, FRONT [/01G/02G]
003B	4822 444 40701	FRONT PANEL (BLK) [/01B/02B/05B]
003B	4822 444 40696	FRONT PANEL (GLD) [/01G/02G]
005B	4822 410 62898	BUTTON, D3
006B	4822 410 62899	BUTTON, OPEN/CLOSE (BLK) [/01B/02B/05B]
006B	4822 410 62931	BUTTON, OPEN/CLOSE (GLD) [/01G/02G]
007B	4822 450 62145	WINDOW
008B	4822 459 11167	BADGE [/01B/02B/05B]
008B	4822 459 11168	BADGE [/01G/02G]
021B	4822 502 13315	B.T.SCREW (W/TL)
023B		PH.TAP.SCREW
045B	4822 410 62744	BUTTON, POWER (BLACK) [/01B/02B/05B]
045B	4822 410 62745	BUTTON, POWER (GOLD) [/01G/02G]
050B	4822 454 30491	ESCUTCHEON [/01B/02B]
050B	4822 454 30494	ESCUTCHEON [/01G/02G]
003D	4822 502 12511	B.T.SCREW (W/W)
009G	4822 462 42045	LEG, FRONT
010G	4822 462 42048	LEG, REAR
021G	4822 502 12511	B.T. SCREW (W/W)
025G	4822 403 70989	LINK, POWER SW.
911G	4822 532 61184	BUSHING, AC CORD [/01B/01G]
911G	4822 532 60948	BUSHING, AC CORD BUSH [/02B/02G/05B]
⚠W001	4822 321 10945	A.C.POWER CORD [/01]
⚠W001	4822 321 10428	A.C.POWER CORD [/02]
⚠W001	4822 321 11019	A.C.POWER CORD [/05]
W101	4822 321 62203	JUMPER LEAD, SUMI-CARD 15P
WY01	4822 321 62204	JUMPER LEAD, SUMI-CARD 37P/120MM
		PACKING
001T	4822 736 21863	USER MANUAL, CD-43/53/63 COMB.
J081	4822 321 21438	CONNECTIVE CORD, RCA 2P
J082	4822 265 10092	JACK, AC ADAPTER [/01]
T100	4822 218 10527	IR COMANDER (RC-63CD)

9. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R＊＊＊ : (1) GD05 xxx 140, Carbon film fixed resistor, ±5% 1/4W
R＊＊＊ : (2) GD05 xxx 160, Carbon film fixed resistor, ±5% 1/6W

① —— Resistance value

Examples ;
① Resistance value

0.1 Ω 001	10 Ω 100	1 kΩ 102	100 kΩ 104
0.5 Ω 005	18 Ω 180	2.7 kΩ 272	680 kΩ 684
1 Ω 010	100 Ω 101	10 kΩ 103	1 MΩ 105
6.8 Ω 068	390 Ω 391	22 kΩ 223	4.7 MΩ 475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C＊＊＊ : CERAMIC CAP.
(1) DD1x xxx 370, Ceramic capacitor
Disc type
① ② Temp. coeff. P350 ~ N1000, 50V
② —— Capacity value
① —— Tolerance

Examples ;
① Tolerance (Capacity deviation)
± 0.25pF 0
± 0.5pF 1
± 5% 5
＊ Tolerance of COMMON PARTS handled here are as follows :
0.5pF ~ 5pF ....± 0.25pF
6pF ~ 10pF ....± 0.5pF
12pF ~ 560pF ....± 5%
② Capacity value

0.5 pF 005	3 pF 030	100 pF 101
1 pF 010	10 pF 100	220 pF 221
1.5 pF 015	47 pF 470	560 pF 561

C＊＊＊ : CERAMIC CAP.
(1) DK16 xxx 300, High dielectric constant ceramic capacitor
① Disc type
Temp. chara. 2B4, 50V
② —— Capacity value

Examples ;
② Capacity value

100 pF 101	1000 pF 102	10000 pF 103
470 pF 471	2200 pF 222	

C＊＊＊ : ELECTROLY CAP. (⏚), FILM CAP. (⏤)
(1) EA xxx xxx 10, Electrolytic capacitor
One-way lead type,
① ② Tolerance ± 20%
② —— Working voltage
① —— Capacity value

Examples ;
① Capacity value

0.1 µF 104	4.7 µF 475	100 µF 107	
0.33 µF 334	10 µF 106	330 µF 337	
1 µF 105	22 µF 226	1100 µF 118	
		2200 µF 228	

② Working voltage

6.3 V 006	25 V 025	
10 V 010	35 V 035	
16 V 016	50 V 050	

(2) DF15 xxx 350, Plastic film capacitor
One-way type, Mylar ± 5% 50V
① —— Capacity value

Examples ;
① Capacity value

0.001 µF (1000pF) 102	0.1 µF 104	
0.0018 µF 182	0.56 µF 564	
0.01 µF 103	1 µF 105	
0.015 µF 153		

NOTE : The above CODES (R＊＊＊, R＊＊＊, C＊＊＊, C＊＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
On the occasion. be confirmed common parts on the parts list.

REF. DESIG.	PART NO.	DESCRIPTION
		P116-MAIN CIRCUIT BOARD
		P116-CAPACITORS
CD02	4822 122 32185	CERAMIC 10PF ±0.5PF 50V
CD03	4822 122 32185	CERAMIC 10PF ±0.5PF 50V
CD04	4822 124 90363	ELECT 220 µF 10V
CD05	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CD06	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CD07	4822 124 90363	ELECT 220 µF 10V
CD08	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CD12	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CD13	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CD15	4822 124 90363	ELECT 220 µF 10V
CD16	4822 124 90363	ELECT 220 µF 10V
CD21		FILM 120PF ± 5% 100V [CD63]
CD21	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD22		FILM 120PF ± 5% 100V [CD63]
CD22	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD23		FILM 120PF ± 5% 100V [CD63]
CD23	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CD24		FILM 120PF ± 5% 100V [CD63]
CD24	4822 126 11559	CERAMIC 120PF ± 5% 50V [CD43/CD53]
CF01	4822 122 40589	CERAMIC 0.047µF ±20% 50V
CF02	4822 124 41539	ELECT 47 µF 16V
CF03	4822 124 22274	ELECT 4.7 µF 50V
CF51	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
CF52	4822 124 41534	ELECT 10 µF 25V
CH01	4822 126 10513	CERAMIC 47PF ± 5% [CD63]
CH02	4822 126 10513	CERAMIC 47PF ± 5% [CD63]
⚠CH11	4822 121 43732	FILM0.01µF+80%-20% 250V AC
⚠CN01	4822 124 22277	ELECT 470µF 16V
CN02	4822 124 90357	ELECT 2.2µF 50V
CN03	4822 124 41534	ELECT 10µF 25V
CT02	4822 122 31125	CERAMIC4700PF +80%-20% 50V
CT04	4822 122 30103	CERAMIC0.022µF +80%-20% 50V
CT10	4822 122 30103	CERAMIC0.022µF +80%-20% 50V [CD63]
C111		
⚹	4822 126 12918	CERAMIC 220PF ± 5% 50V
C116		
C119	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C120	4822 124 41539	ELECT 47 µF 16V
C121	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C122	4822 124 41539	ELECT 47 µF 16V
C123	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C124	4822 124 41534	ELECT 10 µF 25V
C134	4822 124 90357	ELECT 2.2 µF 50V
C135	4822 124 41539	ELECT 47 µF 16V
C136	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C137	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C138	4822 124 41539	ELECT 47 µF 16V
C143	4822 126 11069	CERAMIC 150PF ± 10%
C144	4822 126 11069	CERAMIC 150PF ± 10%
C146	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C148	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C151	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C152	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C153	4822 124 41539	ELECT 47 µF 16V
C154	4822 124 41539	ELECT 47 µF 16V
C501	4822 126 11069	CERAMIC 150PF ± 10%
C503	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C504	4822 124 90363	ELECT 220 µF 10V
C507	4822 126 10513	CERAMIC 47PF ± 5%

REF. DESIG.	PART NO.	DESCRIPTION
C508	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C509	4822 122 40589	CERAMIC 0.047µF +80%-20% 50V
C510	4822 124 90363	ELECT 220 µF 10V
C511	4822 124 90363	ELECT 220 µF 10V
C512	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C513	4822 122 40589	CERAMIC 0.047µF ±20% 50V
C514	4822 126 10364	CERAMIC 100PF ± 10%
C601		
⚹		FILM 120PF ± 5% 100V [CD63]
C604		
C601		
⚹	4822 126 11559	FILM 120PF ± 5% 100V [CD43/CD53]
C604		
C607		FILM 100PF ± 5% 100V [CD63]
C607	5322 122 32265	CERAMIC 100PF ± 5% 50V [CD43/CD53]
C608		FILM 100PF ± 5% 100V [CD63]
C608	5322 122 32265	CERAMIC 100PF ± 5% 50V [CD43/CD53]
C611		
⚹	4822 124 90364	ELECT 220 µF 16V [CD53/CD63]
C614		
C611		
⚹	4822 124 90354	ELECT 100 µF 16V [CD43]
C614		
C651		
⚹	4822 124 90364	ELECT 220 µF 16V [CD63]
C654		
C655		
⚹	4822 124 90364	ELECT 220 µF 16V
C658		
C659	4822 126 10364	CERAMIC 100PF ± 10% [CD63]
C659	5322 122 32265	CERAMIC 100PF +80%-20% 50V [CD43/CD53]
C660	4822 126 10364	CERAMIC 100PF ± 10% [CD63]
C660	4822 122 32265	CERAMIC 100PF +80%-20% 50V [CD43/CD53]
C801	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
C802	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
⚠C803	4822 124 41541	ELECT 470µF 35V [CD63]
⚠C803	4822 124 41538	ELECT 220µF 35V [CD43/CD53]
⚠C804	4822 124 41541	ELECT 470µF 35V [CD63]
⚠C804	4822 124 41538	ELECT 220µF 35V [CD43/CD53]
⚠C805	4822 124 22277	ELECT 470µF 16V [CD63]
⚠C805	4822 124 90354	ELECT 100µF 16V [CD53]
⚠C805	4822 124 41539	ELECT 47µF 16V [CD43]
⚠C806	4822 124 22277	ELECT 470µF 16V [CD63]
⚠C806	4822 124 90354	ELECT 100µF 16V [CD53]
⚠C806	4822 124 41539	ELECT 47µF 16V [CD43]
C811	4822 122 40589	CERAMIC 0.047µF +80%-20% 50V
C812	4822 122 40589	CERAMIC 0.047µF +80%-20% 50V
⚠C813	4822 124 80582	ELECT 4700µF 16V
⚠C814	4822 124 22722	ELECT 1000µF 16V
C815	4822 124 80773	ELECT 3300µF 6.3V
⚠C852	4822 124 90355	ELECT 100 µF 50V
C853	4822 124 80772	ELECT 47µF 35V
⚠C854	4822 124 90355	ELECT 100 µF 50V
C901	4822 124 41534	ELECT 10µF 25V
C902	4822 124 41534	ELECT 10µF 25V
C903	4822 124 90354	ELECT 100 µF 16V
C904	4822 124 90354	ELECT 100 µF 16V
C＊＊＊		**P116-CAPACITORS (COMMON)** PLASTIC FILM CAPACITOR ONE-WAY TYPE, MYLER ± 5% 50V: CT01, C131, C132, C133, C139~C142, C149, C155, C156, C506, C605, C606
C＊＊＊		HIGH DIELECTRIC CONSTANT CERAMIC CAPACITOR, 50V: CT03, C117, C118, C505

REF. DESIG.	PART NO.	DESCRIPTION
C＊＊＊		CERAMIC CAPACITOR, 50V: C502
		P116-RESISTORS
⚠RD01	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠RD04	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠RF01	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠RN08	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠RY11	4822 111 90967	4.7Ω ± 5% 1/4W FUSE [CD53/CD63]
⚠R122	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R123	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R127	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R128	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R136	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R149	4822 116 60307	21Ω ± 5% 1/4W FUSE
⚠R150	4822 116 60307	1Ω ± 5% 1/4W FUSE
⚠R164	4822 116 60307	1Ω ± 5% 1/4W FUSE
⚠R165	4822 116 60307	1Ω ± 5% 1/4W FUSE
⚠R508	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R511	4822 111 90967	4.7Ω ± 5% 1/4W FUSE
⚠R613		
⚹	4822 052 10109	10Ω ± 5% 1/4W
⚠R616		
⚠R651		
⚹	4822 115 90197	27Ω ± 2% 1/4W FUSE [CD63]
⚠R654		
R＊＊＊		**P116-RESISTORS (COMMON)** CARBON FILM FIXED RESISTOR ±5% 1/6W: RD02, RD11~RD16, RD21~RD28, RF02, RF03, RF06, RF08~RF10, RF12~RF17, RF20, RF21, RF51~RF57, RF61[CD53/CD63], RH01~RH12[CD63] RH15~RH26[CD63], RN01, RN02, RN04~RN07, RN09, RN10, RN15~RN18, RN23, RN26,~RN31, RN91, RN92, RT01, RT02, RT10[CD63], R107, R114~R119, R121, R124~R126, R129~R135, R137~R148, R151~R157, R159~R163, R501~R507, RR509, R510, R514, R601~R612, R617[CD63], R618[CD63], R619[CD43/CD53], R620[CD43/CD53], R655~R662, R851~R855, R901~R906, R909, R910, R913, R914
		P116-SEMICONDUCTORS
DF01	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF03	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF04	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF51	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DF52	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DH01		
⚹	4822 130 33305	DIODE, 1SS176,MA165,1SS254
DH10		30V 0.1A [CD63]
⚠DN01		
⚹	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠DN04		IO=1A

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REF. DESIG.	PART NO.	DESCRIPTION
DN05	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN06	4822 130 33948	ZENER DIODE, 04AZ5.6-Y 5.6V
DN07	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN23	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DN24	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
⚠D151	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D152	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D801 ~ ⚠D804	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D811 ~ ⚠D814	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D851	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D852	4822 130 80318	ZENER DIODE 04AZ6.8-Z 6.8V
D853	4822 130 33759	ZENER DIODE 04AZ4.7-Y 4.7V
⚠D854	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
QD01	4822 209 32762	IC, DIG.FIL & DAC SM5872BS
QF01	4822 209 32887	IC, MAIN CPU MN187164
QF02	4822 209 73951	IC, RESET IC PST523D (4.2V) LOW
QF51	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QF52	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311,2SC1740S
QF61	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S [CD53/CD63]
QH01	4822 130 63382	F.E.T. 2SK332D-6A [CD63]
QH02	4822 130 63382	F.E.T. 2SK332D-6A [CD63]
QH03	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH04	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH05 ~ QH08	4822 130 42951	TRANSISTOR 2SA970 (GR, BL) [CD63]
QH09	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH10	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL) [CD63]
QH11	5322 130 41844	F.E.T. 2SK170 BL VGDS=-40V PD=0.4V [CD63]
QH12	5322 130 41844	F.E.T. 2SK170 BL VGDS=-40V PD=0.4V [CD63]
QH13	4822 130 62649	F.E.T. 2SJ74 BL VGDS=25V PD=24W [CD63]
QH14	4822 130 62649	F.E.T. 2SJ74 BL VGDS=25V PD=24W [CD63]
⚠QM01	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
QN01 ~ QN04	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QN05 ~ QN08	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
QN20	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QN24	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QN25	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QN91	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
QN92	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
Q104	4822 209 32763	IC, DIGITAL SERVO CONT.TDA1301T
⚠Q105	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
⚠Q106	4822 209 62755	IC, DUAL POWER OP AMP TCA0372
Q501	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q502	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311,2SC1740S
Q503	4822 209 32764	IC, CD DECODER SAA7345 (CD6)
Q605	4822 209 31153	IC, DUAL LOW NOISE OP-AMP NJM2114D [CD53/CD63]
Q605	4822 209 83627	IC, NJM4560D [CD43]
Q606	4822 209 31153	IC, DUAL LOW NOISE OP-AMP NJM2114D [CD53/CD63]
Q606	4822 209 83627	IC, NJM4560D [CD43]
⚠Q801	4822 209 31712	IC, NJM78M12FA
⚠Q802	4822 209 63641	IC, -12V 0.5A NJM79M12FA
⚠Q811	4822 209 31631	IC, +5V NJM7805FA
⚠Q851	4822 209 31788	IC, -18V 500MA REG.NJM79M18FA JRC
Q852	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q853	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q854	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q901	4822 209 83654	IC, NJM4556D
		P116-MISCELLANEOUS
⚠FH11	4822 253 30414	FUSE 630 MA 250V
⚠FH12	4822 253 30414	FUSE 630 MA 250V
JF01	4822 265 61251	JACK 37 PIN FFC
JF03	4822 267 41009	TERMINAL 2P RCA PIN JACK (RC-5 IN/OUT)
JT11	4822 267 31369	JACK, OPTICAL OUTPUT GP1F32T [CD63]
J103	4822 265 41351	JACK, 15P
J601	4822 265 31045	TERMINAL RCA 2P OUTPUT [CD63]
J601	4822 267 31727	TERMINAL RCA 2P OUTPUT [CD43/CD53]
J805	4822 256 30329	JACK, FUSE CLIP
J806	4822 267 30978	JACK, FUSE CLIP
J807	4822 256 30329	JACK, FUSE CLIP
J808	4822 267 30978	JACK, FUSE CLIP
LT01	4822 142 60388	PULSE TRANSFORMER
⚠L001	4822 146 21751	POWER TRANSFORMER [/01]
⚠L001	4822 146 21749	POWER TRANSFORMER [/02/05]
L601	4822 157 62899	CHOKE COIL 220µH
L602	4822 157 62899	CHOKE COIL 220µH
SF01	4822 277 21559	SLIDE SWITCH, IR INT/EXT [CD53/CD63]
⚠SH02	4822 277 21465	SLIDE SWITCH, VOLTAGE SELECTOR [/01B]
⚠SH91	4822 276 13364	PUSH SWITCH, POWER
XD01	4822 242 72334	CRYSTAL 16.9344MHZ
XF01	4822 242 72066	CERAMIC VIBRATOR CST8.0MHZ
X101	4822 242 81536	CERAMIC VIBRATOR CST8.46MTW
		P126-HF CIRCUIT BOARD
		P126-CAPACITORS
C101	4822 126 10364	CERAMIC 100PF ± 10%

REF. DESIG.	PART NO.	DESCRIPTION
C102	4822 126 10513	CERAMIC 47PF ± 5%
C103	4822 126 10513	CERAMIC 47PF ± 5%
C104	4822 126 11554	CERAMIC 18PF ± 5%
C105	4822 126 11069	CERAMIC 150PF ± 10%
C106	4822 124 41534	ELECT 10 µF 25V
C107	4822 122 40589	CERAMIC0.047µF ± 20% 50V
C108	4822 126 11069	CERAMIC 150PF ± 10%
C109	4822 126 11069	CERAMIC 150PF ± 10%
C110	4822 126 11071	CERAMIC 330PF ± 10%
		P126-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR ±5% 1/6W: R101~R106, R108~R113
		P126-SEMICONDUCTORS
Q101	4822 130 61748	TRANSISTOR 2SC2668 (O)
Q102	4822 130 42298	TRANSISTOR 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
Q103	4822 130 42715	TRANSISTOR 2SA608SP, 2SA1048, 2SA1309, 2SA933S
		P126-MISCELLANEOUS
J101	4822 265 41349	JACK, 12P
J102	4822 265 41351	JACK, 15P
		P136-HEADPHONE CIRCUIT BOARD
		P136-CAPACITORS
C980	4822 122 30103	CERAMIC 0.022µF +80%-20% 50V
		P136-MISCELLANEOUS
J900	4822 267 31691	JACK, HEAD PHONE [/01B/02B/05B]
J900	4822 267 31692	JACK, HEAD PHONE [CD53/01G/02G]
		PY16-FRONT CIRCUIT BOARD
		PY16-CAPACITORS
CY01	4822 122 40589	CERAMIC 0.047µF ±20% 50V
		PY16-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR ±5% 1/6W: RY01
		PY16-CEMICONDUCTORS
DY01 ~ DY04	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
		PY16-MISCELLANEOUS
JY01	4822 265 61252	JACK, 37 PIN CARD TYPE
SY01 ~ SY14	4822 276 20508	PUSH SWITCH
SY15 ~ SY24	4822 276 13296	PUSH SWITCH
VY01	4822 130 91287	DISPLAY UNIT
ZY01	4822 214 52009	PHOTO UNIT GP1U58XP [CD53/CD63]

NOTE ON SAFETY

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.